



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,294	01/03/2007	Osamu Sakurada	296512US0PCT	8434
22850 7590 03/03/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER AHVAZI, BIAN				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
03/03/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

### Office Action Summary

**Application No.**

10/593,294

**Applicant(s)**

SAKURADA ET AL.

**Examiner**

BIJAN AHVAZI

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/13/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is responsive to the amendment filed on December 17, 2009.
2. Applicant's election of **Group I**, claims 1-6, 8-12, 17-18 in the reply filed on 12/17/2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election **without traverse** (MPEP § 818.03(a)).
3. Claims 1-6, 8-12, 17-18 are pending. Claims 7, 13-16 are withdrawn from further consideration.

#### ***Claim Rejections - 35 USC § 112***

4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 6, the inclusion of a term within parentheses renders the claim indefinite because it is unclear whether the included term is part of the claimed invention.

#### ***Claim Rejections - 35 USC § 102/103***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b)/103(a) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 USC 102(b) as being anticipated by or, in the alternative, under 35 USC 103(a) as being unpatentable over Takahashi *et al.* (Pub. No. US 2002/0000532 A1).

Regarding claims 1-2, Takahashi *et al.* disclose a composition for dispersing of a particle , characterized in being obtained by mixing a metal alkoxide (Page 1, ¶0011) containing a metal element having +3 to 5 valence (Page 1, ¶0011), an organic acid (Page 1, ¶0012) and water (Page 1, ¶0011) , wherein the composition for dispersing of a particle is obtained by mixing a hydrolysate derived from said metal alkoxide (Page 2, ¶0020), and said organic acid, and which is a transparent aqueous solution (Page 3, ¶0036, Example 1, Table 1). Takahashi *et al.* teach a composition for dispersing of a particle as the recited claim. If there is any difference between the product of Takahashi *et al.* and the product of the instant claim(s) the difference would have been minor and obvious.

Claims 1 and 2 are viewed as product-by-process claims and hence the methods they are created by are not pertinent, unless applicant can show a different product is produced. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See MPEP 2113. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP

Regarding claims 3-4, Takahashi *et al.* disclose the composition for dispersing of a particle, wherein said metal element is aluminum or titanium (Page 1, ¶0011) containing a metal element having +3 to 5 valence (Page 1, ¶0011, Page 2, ¶0020).

Pertaining specifically to claims 1-2, since Takahashi *et al.* disclose the same a composition as the recited claimed, one of ordinary skill in the art at the time of invention was made, would have expected that a composition for dispersing of a particle of Takahashi *et al.* would inherently be the same as claimed. If there is any difference between the product of Takahashi *et al.* and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

**Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi *et al.* (Pub. No. US 2002/0000532 A1) as applied to claims 1-4 above, and further in view of Russell *et al.* (Pat. No. US 2,926,183).

Regarding claims 5-6, Takahashi *et al.* disclose the features as discussed above.

Takahashi *et al.* do not expressly teach the composition for dispersing of a particle wherein said organic acid is at least one type selected from the group consisting of lactic acid, oxalic acid, citric acid and tartaric acid and wherein the mixing proportion of said organic acid and said metal alkoxide (organic acid: metal alkoxide), is (0.5 - 2): 1 by molar ratio.

However, Russell *et al.* teach a stable water soluble organic complexes of titanium lactate complex (Col. 1, lines 15-18, Col. 3, line 60), wherein the mole ratio of titanium to lactic acid is substantially 1:1 (Col. 5, lines 1-2) or between 1:1 and 1:2 can also be employed (Col. 5, lines 4).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composite for dispersing of a particle by Takahashi *et al.* so as to include organic acid such as lactic acid (interchangeable for an organic acid of Takahashi *et al.*) as taught by Russell *et al.* with reasonable expectation that this would result in providing a desirable production of titanium lactate complex which would be stable in aqueous solution of at a pH as

high as 8.0 or 9.0. as taught by Russell *et al.* (Col. 1, lines 65-67) since such complexes are unstable on the alkaline side.

9. Claims 8-10, 12, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi *et al.* (Pub. No. US 2002/0000532 A1) as applied to claims 1-4 above, and further in view of Arney *et al.* (Pat. No. US 6,432,526 B1).

Regarding claims 8-12, Takahashi *et al.* disclose the features as discussed above. Takahashi *et al.* do not expressly teach a composition having a particle dispersed therein, characterized in comprising a particle and said composition for dispersing of a particle, wherein said particle is an oxide particle and the content of said particles is 60 % by volume or less, which is used in an application for ceramic material, photocatalytic material, optical material or electronic material.

However, Arney *et al.* teach colloids composition (i.e. creamer composition) including the metal oxide particles such as titanium-based particles (Col. 2, lines 47-48) having dispersing aid attached thereto dispersed in an organic liquid (Col. 2, lines 58-60), wherein said particle is an oxide particle and the content of said particles 60 % by volume or less (i.e. 34% ) as shown in Table 1 (Col. 24, lines 24-45) which is used in an application for lenses, sheets, fibers, prisms, computer screens, and CRT face plates (Col. 28, lines 15-17).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composite for dispersing of a particle by Takahashi *et al.* so as to include a composition having a particle dispersed as taught by Arney *et al.* with reasonable expectation that this would result in desirable transparent polymer/metal oxide compositions having high

refractive indexes, since it is difficult to obtain the metal oxide particles when combined with polymer precursors, can agglomerate and decrease the transparency of the resulting ceramers as taught by Arney *et al.* (Col. 2, lines 1-5).

Regarding claims 17-18, Takahashi *et al.* disclose a process for producing a titanium-containing aqueous solution, comprising reacting a titanium alkoxide with water in the presence of at least one of ammonia, amines and a carboxylic acid is used in combination (i.e. a mixing step for mixing, Page 5, Claim 1, lines 1-8), wherein titanium ion in water exists usually in the form of an aqua-complex with the amine function not as a ligand bonding to titanium but as a base, and they form alkylammonium cations and hydroxide anions (i.e. adjusting the composition depending on isoelectric point particles in a mixing step, Page 2, ¶0020). Takahashi *et al.* do not expressly teach a process for producing a composition having a particle dispersed.

However, Arney *et al.* teach a process of making dispersible crystalline metal oxide nanoparticles (Col. 3, lines 1-2, Col. 5, lines 48-60, Col. 26, lines 32-33).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composite for dispersing of a particle by Takahashi *et al.* so as to include a process for producing a composition having a particle dispersed, wherein the process comprises a mixing step a particle and a solvent, and that the amount of said composition to be mixed is adjusted depending on the isoelectric point of said particle in said mixing step, wherein said solvent is water as taught by Arney *et al.* with reasonable expectation that this would result in desirable transparent polymer/metal oxide compositions having high refractive indexes, since it is difficult to obtain the metal oxide particles when combined with polymer precursors, can



agglomerate and decrease the transparency of the resulting ceramers as taught by Arney *et al.* (Col. 2, lines 1-5).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi *et al.* (Pub. No. US 2002/0000532 A1) and Arney *et al.* (Pat. No. US 6,432,526 B1) as applied to claims 1-4, 8-10, 12, and 17-18 above, and further in view of Russell *et al.* (Pat. No. US 2,926,183).

Regarding claim 11, Takahashi *et al.* and Arney *et al.* disclose the features as discussed above. Takahashi *et al.* and Arney *et al.* do not expressly teach a composition having a particle dispersed therein, wherein pH is in the range from 2 to 11.

However, Russell *et al.* teach a stable water soluble organic complexes of titanium lactate complex (Col. 1, lines 15-18, Col. 3, line 60), wherein the mole ratio of titanium to lactic acid is substantially 1:1 (Col. 5, lines 1-2) or between 1:1 and 1:2 can also be employed (Col. 5, lines 4), wherein pH is in the range from 1 to 9 (Col. 3, lines 4-8).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composite for dispersing of a particle by Takahashi *et al.* and a composition having a particle dispersed by Arney *et al.* so as to include a composition having a particle dispersed therein, wherein pH is in the range from 1 to 9 as taught by Russell *et al.* with reasonable expectation that this would result in providing a desirable production of titanium lactate complex which would be stable in aqueous solution of at a pH as high as 8.0 or 9.0. as taught by Russell *et al.* (Col. 1, lines 65-67) since such complexes are unstable on the alkaline side.

***Examiner Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bijan Ahvazi, Ph.D. whose telephone number is (571)270-3449. The examiner can normally be reached on M-F 8:0-5:0. (Off every other Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BA/  
Bijan Ahvazi,  
Examiner  
Art Unit 1796

/Harold Y Pyon/  
Supervisory Patent Examiner, Art Unit 1796

2/16/2010